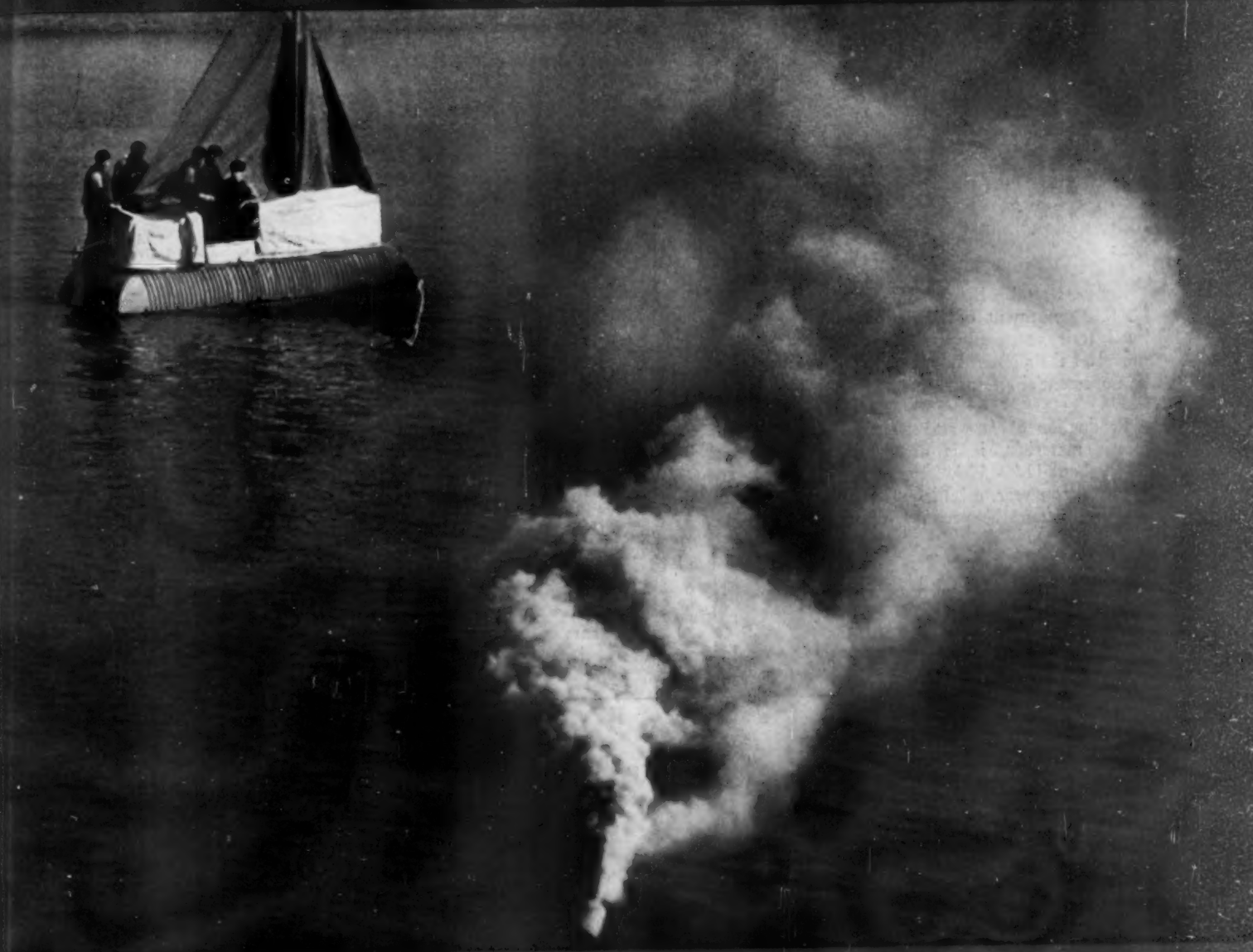


15

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

JUNE 19, 1943



Smoke Signal

See Page 396

A SCIENCE SERVICE PUBLICATION

## Do You Know?

Virgin forests in America which covered probably 800,000,000 acres in 1643 now cover less than 100,000,000 acres.

Hunters can help in the manufacture of munitions by saving the *fats* from game and fur animals, previously wasted.

Guatemala expects to produce commercially a *wax* which may be used as a basis of shellac, from an insect related to the Asiatic lac insect.

Pickled pigtails, Canadian, are a delicacy with some of the natives in Africa; the average pickled pigtail is five inches long and weighs a half-pound.

A live sponge four inches high and half an inch in diameter draws about 24 quarts of water through its body daily, straining out minute food organisms.

Roosters at the Beltsville farm of the U. S. Department of Agriculture have lived four years after the surgical removal of their gizzards, proving these to be nonessential organs.

Production of *fats* and *oils* from domestic materials, it is estimated, will reach about 11,000,000,000 pounds in the 1942-43 crop year, a billion pounds over the production the preceding year.

Orange and grapefruit *juices* packed in glass jars darken and develop off-flavors in a few months at ordinary temperatures; no known method of processing them will prevent the deterioration.

## Question Box

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Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

Coffee tablets that can be dissolved in hot water and served are promised by a new development in Brazil by which the oil and salts are removed from the bean, the remainder being compressed into tablets.

Titanium, a dark-gray metallic element used in its oxide form as a pigment in white paint, is estimated to be the ninth commonest element in the earth's crust; 30 years ago it was regarded as a rare curiosity.

Tuna fish landings in Southern California ports totalled over 15,000,000 pounds during the first four months of this year, more than double the landings for the same period last year.

War industries using the rare metals tantalum, molybdenum and tungsten will request government allocations in kilograms in the future instead of in pounds avoirdupois; requests for tungsten and molybdenum chemicals will be made in pounds.

## SCIENCE NEWS LETTER

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## MEDICINE

# Fewer Die of Wounds

**American medical officers are saving from five to nine times as many wounded soldiers as was possible in the first World War.**

► AMERICAN DOCTORS are saving from five to nine times as many soldiers from dying of battle wounds in this war as was possible in World War I, it appears from casualty figures announced by Major Gen. Norman T. Kirk, new Surgeon General of the U. S. Army, at the meeting of the American Medical Association in Chicago.

The figures he gave covered the period during the phases of the North African campaign before the Army moved up into northern Tunisia. The death rate at that time in the evacuation hospitals was from 2½% to 3½%, compared to a death rate of 15% to 18% in evacuation hospitals in the last war.

This remarkably low mortality was achieved in spite of great difficulties in evacuation. In some places eight-mile litter carries were necessary to get the wounded from the field to the ambulances. The ambulances had to travel 20 to 30 miles over mountain roads to evacuation hospitals.

For the future, the Army Medical Department hopes to have exclusive airplanes and possibly even helicopters for the evacuation of the wounded. So far in Africa, 13,000 sick and wounded have been evacuated by plane, Gen. Kirk said. But these evacuations were in planes used to take supplies forward. Helicopters are being experimented with but so far none is in actual service for evacuation of wounded.

Plasma, surgery and sulfa drugs were credited by Gen. Kirk in that order for the great saving in lives. Sulfa drugs will always come second to surgery and third to plasma in saving the wounded, he said. This is because shock and hemorrhage and bomb or shell fragments are the biggest threats to the life of the wounded.

Plasma is given at the clearing stations and sometimes at the collecting stations. At the evacuation hospitals, the surgeons clean the wounds, remove shell or bomb fragments and institute drainage. From 80% to 85% of the casualties, he said, are due to shell and bomb fragments, which carry more clothing and infection in the body than rifle bullets. In some

places, because of evacuation difficulties, auxiliary groups of surgeons were sent into the forward area to perform operations.

An astoundingly small number of wounded have had the serious bone infection, osteomyelitis, which occurred in 75% of compound fractures in the last war. In all the base hospitals in Africa, up to April 30, there were only 70 cases of this condition. In one group of 373 compound fractures, there were only five or six cases of infection instead of the 279 which the last war's 75% rate would have given.

The percentage of survivals in cases of head wounds is much greater than in the last war, as is the survival in cases of abdominal wounds, with even those coming to operation late largely surviving. Of great help for these cases, Gen. Kirk said, is the Levine tube, which goes into the stomach through the nose

and by suction keeps the stomach empty and prevent distention.

Most fracture cases are transported to the rear in plaster casts, but the casts must be padded, Army surgeons have learned. For fractures of long bones, Gen. Kirk is opposed to the method widely used in the Spanish Civil War, of keeping the leg or arm in a plaster cast until the bone sets. Traction is essential in these cases, he said.

Only 12 cases of gas gangrene, with one death, occurred while the Army was still in the South.

The Army has medical installations in every country in the world not held by the Axis, and as soon as it moves into Axis territory, it expects to set up medical units to care for the civilian population. This will be done, Gen. Kirk explained, in order to protect the Army from infectious diseases prevalent among civilians.

The general health of the Army in Africa has been excellent, better than was expected and better even than at home. Venereal diseases are the biggest health problem.

"We are going to need more doctors," Gen. Kirk declared. "We must have enough to win this war, and we haven't started fighting yet. Tunisia and Guadalcanal were only side plays."



**CRASH TRUCK**—Built for Army Air Forces, this truck is ready to rush to the scene of a crash and shoot hundreds of gallons of water on a burning plane, blacking out the fire and rescuing pilot and crew. Engineers of Mack Trucks, Inc., worked with the Fire Prevention Section of the U. S. Corps of Engineers in developing the unit.



He added that he appreciated fully the need for leaving enough doctors at home to care for the civilian population. He quoted Gen. Eisenhower as saying

that the outstanding service of the whole A.E.F. was that rendered by the medical department.

*Science News Letter, June 19, 1943*

#### PSYCHOLOGY-SOCIOLOGY

## Zoot-Suit Epidemic

**Movement is widely scattered over the United States without an official organization, but occasionally flares up in certain areas.**

► THE "ZOOT-SUIT" movement which caused serious difficulties with Navy, Army and other service groups in Los Angeles, exists in widely scattered localities over the United States, but flares up unexpectedly in "epidemic forms" in certain places and at certain times, according to a group of scientists who have studied the Zoot-Suiters in Detroit. Cities that have been most worried about them include besides Los Angeles, New York, Washington, D.C., and Detroit.

The Zoot-Suiters appear to be without any sort of official organization, although it had a distinct "uniform" even before it became a movement, Dr. Fritz Redl, of Wayne University's School of Public Affairs and Social Work, said in a report of the "Subcommittee on the Study of the 'Zoot-Suit' Movement" to the Detroit Association for the Study of Group Work.

At times the gangs are very loosely held together, if they exist at all, the members being merely a haphazard lot of jitterbugging youngsters. Then suddenly they may "congeal" into a unified group for intensive and sometimes threatening fighting such as is reported from Los Angeles.

The zoot-suit, originally just a dress fad intended as a part of the jitterbug dance, has become the visible signal for concerted action. It is, according to the report, "definitely a symbolic expression of potential unity of attack."

When the epidemic rages in a locality, according to the scientists, not only do more boys and girls join the jitterbugging Zoot-Suiters, but their behavior becomes more vehement and intense.

"The original basis of dance enjoyment seems to be brushed aside by an interest in tough-guy behavior, in alcoholic excesses, in rebelliously manifested freedom of inhibition in social relations with the other sex."

Although they have developed their own brand of double-talk language,

which they make a point to use only in addressing each other, the Zoot-Suiters have a tendency, the scientists state, "toward reckless extension of the freedom of behavior even toward non-members" and "get in trouble through doing so."

This would seem to have happened in Los Angeles, where servicemen have resented this "freedom."

The scientists have also observed trends "toward disturbance of the establishment they enter, and of immediate cohesion when attacked, toward violence and destruction on a large scale (tearing up plush seats, etc.) and toward the provocation of closed fights with local boys, bouncers and police."

The Zoot-Suiters include both white and colored groups and deterioration into gang vehemence and destructive orgies have occurred in both groups, the report states.

Warning against hysterical condemnation of all young Zoot-Suiters, because of present difficulties with service men in Los Angeles, was voiced by Dr. Redl in an interview.

Not all the youthful wearers of the zoot suit are criminals or delinquents, Dr. Redl emphasized. Among those who affect this peculiar dress are three entirely different groups, hard for the outsider to tell apart.

1. This group includes the enthusiastic jitterbugs who find the orgies of this wild form of dancing a release to restless emotions.

2. Another type of Zoot-Suiter wears this sort of clothing as a chronic sort of irritation in the age-old friction between youth and adult. To them the zoot suit is merely a clothing fad.

3. But there is some delinquent gang formation under cover of the zoot suit either for general destructiveness or for more or less organized crime.

To glamorize the Zoot-Suiters by hysterical over-excitement and notoriety or over-condemnation is not the way to

reduce interest in the Zoot-Suit movement on the part of the young people who are appealed to by it, Dr. Redl pointed out.

The movement now appeals to youngsters of a special type and social and economic background whose needs are obviously not covered by any of the official adult-dominated youth organizations and agencies. And, Dr. Redl said, it is the beginning of the only spontaneous youth movement so far appealing to these young people.

*Science News Letter, June 19, 1943*

#### ENGINEERING

## Carrier for Torpedo Boats Would Stow Them in Hold

► MOST AMBITIOUS among the warlike inventions recently patented is a carrier craft for motor torpedo boats, analogous to an airplane carrier. This design is submitted by Carl T. Forsberg of New York, who has received patent 2,319,855. It provides stowage space for a number of deadly, swift little vessels in the hold of a broad-beamed ship. A control elevator lifts them out when action is imminent, and an overhead track crane carries them outboard and lowers them into the water.

*Science News Letter, June 19, 1943*

#### CHEMISTRY

## Sea Water Made Drinkable; Two Chemicals Remove Salt

► THIRSTY MEN on life rafts will be able to produce safe drinking water from the sea, thanks to a new method perfected by the Naval Medical Research Institute at Bethesda, Md., and announced officially by the Navy.

Developed for use primarily on rubber life rafts carried on aircraft, the new method utilizes two chemical compounds, the composition of which is not revealed. These two chemicals are compressed into bars of soap size. Four plastic bags, each a quart in size, are needed to perform the chemical reactions that remove the salt and make the water drinkable.

Under life-raft emergency conditions, 11 times as much drinkable water as chemicals used is obtained.

The Navy credits the discovery of the process of removing sodium salts from sea water to Lt. (j.g.) Claire R. Spealman and Lt. William V. Consolazio, volunteer specialists, U.S.N.R.

*Science News Letter, June 19, 1943*

MEDICINE

## New Life Jacket

Canadian Navy has adopted new type that covers more of the body than does life belt and gives better protection against burns and concussion.

► SAILORS in Canada's new navy, which had only 16 ships before the war and now has more than 500, are given a better chance for their lives if things go wrong, by a newly adopted type of life jacket, stated Surgeon Comdr. C. H. Best, R. C. N., in a press conference in Washington, D. C. Comdr. Best, who first came to wide public notice 20 years ago as one of the discoverers of insulin, is in the United States with Surgeon Capt. A. McCallum, Medical Director General of the Royal Canadian Navy, exchanging information and arranging cooperation with U. S. Navy medical authorities and the National Research Council.

The new Canadian life jacket, Comdr. Best stated, covers much more of the body than the conventional life belt, and serves as protection against certain types of injury to the abdomen and lower part of the trunk, which have in the past been peculiarly liable to flash injury from exploding bombs and shells aboard ship and from concussion due to depth charges and torpedoes if the sailor is overboard in the water.

The jacket also has gadgets to make rescue quicker and easier. In a pocket there is a yellow cap which the sailor can take out and put on his head. It carries a small, automatically flashing electric lamp, which will guide rescue

boats in the dark. It also has a six-foot length of rope with a snap hook that can be fastened to a line running around the life-raft, permitting the sailor to float easily in the sea, instead of struggling aboard the tossing raft and perhaps immediately being dumped back into the water. Finally, it has a couple of stout fabric loops, which enable rescuers to grab hold and haul him aboard. The jacket is made of water-repellent fabric and filled with kapok, of which Canada still has an adequate supply.

Another aid to the shipwrecked that has been added to life-boat and life-raft equipment are heavy socks impregnated with vaseline. Wearing these, the sailor is much less likely to develop immersion foot, the terrible injury that is to this war what trench foot was to World War I, with frequent aftermath of death from gangrene or desperate amputations to prevent it.

Comdr. Best described the refrigeration treatment for this malady, which was first developed in Canada by Surgeon Comdr. Donald Webster, and has since been adopted both in this country and Britain. Beginning with merely packing the injured feet in ice bags, the treatment has now progressed to the point of using thermostatically controlled dry-ice refrigeration in a specially built cabinet.

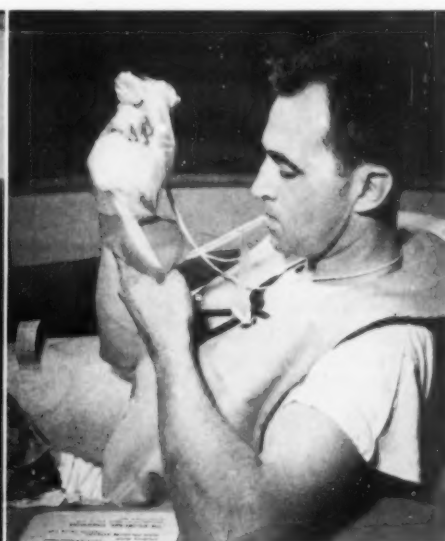
Rationing life-boats and life-rafts has also received intensive attention in Canada. The standard package now is a sealed tin 11 inches square and 3½ inches deep, containing eight 16-ounce tins of water and eight 750-calorie ration packages of chocolate, biscuit, chocolate milk and malted milk.

Canning drinking water may seem a simple operation, Comdr. Best remarked; but it took months of careful research and hundreds of experiments before a can of water was achieved that would keep indefinitely and still taste fit to drink. This task was finally accomplished by Lt. Comdr. James Campbell, R.C.N.

Another solution for the acute problem of drinking water for life-boats is being sought in a hand-powered compressor refrigerator that gets the salt out of sea water by freezing it. This machine weighs about 30 pounds, so that it would be suitable for boats, but hardly for rafts. It is still in the experimental stage of development.

*Science News Letter, June 19, 1943*

**FRESH WATER FROM SALT—A pharmacist's mate demonstrates the new method of making drinkable water from the sea developed at the Naval Medical Research Institute, Bethesda, Md. At the left he squeezes the upper portion of the bag to mix the chemical used with the sea water to remove the salt. The filtered water is then transferred (middle) to the second bag and another chemical inserted to remove the remaining sodium. The water, although tasting of sulfur, is now fit to drink and is taken right from the bag which is secured against loss by cords around the neck.**



## MEDICINE

# Enter Family Doctor

Air surgeon predicts that he will return to the American family scene after the war. Flight surgeons, although specialists, find they need to know patients.

► THE FAMILY doctor is coming back to the American medical scene after the war, Brig. Gen. David N. W. Grant, Air Surgeon, U. S. Army Air Forces, told the American Medical Association at its meeting in Chicago.

Many an American family, it appears, will in the post-war period be taking its measles and sprained ankles and pneumonia and other troubles to doctors who are now flight surgeons.

The reason for this predicted change in the medical picture is that the flight surgeons, now being trained by the thousand, act as physicians to the flying men under their care. Although they are specialists, they have the family physician's intimate knowledge of each patient in his care, and his view of the patient as an individual.

They know, from such signs as a man's starting to smoke more than his usual one pack of cigarettes a day, or taking two drinks instead of one before dinner, that he needs a short rest from flying and its nerve-racking strain, even though the man himself still feels perfectly fit.

This type of care, which is preventive medicine of the highest order, is how the flight surgeons "keep 'em flying."

Keeping them flying, Gen. Grant emphasized, is itself of vast importance to the men's health and morale. If they are not given rests at intervals, they will reach the point where they have to stop flying permanently. No hard-and-fast rules, however, can be followed about when the men should have rest periods. It must be determined for each individual.

Highlights of the Air Forces medical activities in the war, besides keeping its own men fit, as given by Gen. Grant at a press conference:

Complete operating rooms will in the future be glided to the battlefield, so that men wounded during invasion can have life-saving surgical attention right at the clearing station.

Helicopters will operate on a shuttle system to evacuate wounded from field to hospital, transporting in ten minutes casualties who would have had to face a three- or four-hour ambulance ride to

the rear. Such helicopters are being experimented with but none is yet in service.

A complete 25-bed hospital was flown from St. Louis, Mo., to Nome, Alaska, to replace one that burned while Gen. Grant was there a few months ago. Any sized hospital can be shipped by air by using enough planes, Gen. Grant said.

Two tons of sulfanilamide were flown from Seattle, across North America, Africa and India to China, arriving within ten days, for civilian use.

*Science News Letter, June 19, 1943*

## MEDICINE

## Army Nurses Toughened Before Leaving for Duty

► ARMY NURSES are toughened up just as soldiers are before leaving for duty in the combat zone. Nurses, the only women privileged to go wherever the American soldier goes, before embarkation receive special training to equip them for the strenuous life and work to follow in the combat zone. They are even taught to detect booby traps.

Each time the soldiers go on maneuvers, Army nurses accompany them, stated Capt. Kathleen Atto, Assistant Superintendent of the Army Nurse Corps.

Some nurses are given special instruction while in training at an Army hospital, Capt. Atto declared. They are taught how to wear gas masks and drilled in putting them on. They undergo a course in chemical warfare where they learn how to detect the chemicals and the treatment of gas casualties.

At the "School of the Soldier," however, the nurses learn individual defense against air and mechanical attack. They practice ambulance loading, and litter drill is given. Demonstrations in insect control are made. The nurses are drilled in the importance of safeguarding military information.

The Army nurse learns regular drill formation and how to move quickly and obey orders. She goes on long marches and gradually acquires the ability to



**ROUGHING IT**—Members of the Army Nurse Corps are toughened up before being sent for service in the combat area. This nurse, living in a tent in the California desert, is struggling with a pair of G. I. shoes.

carry her own heavy equipment. A class held at Camp McCoy, Wis., in midwinter was appropriately listed as "Operations in Snow and Cold."

Other nurses, on temporary leave of absence from the hospitals, accompany the men on maneuvers. They live on field rations, have an A. P. O. number, and are treated just as though they were out of the country. On these maneuvers the nurses make ingenious substitutes for former "necessities." G. I. helmets have been found to make satisfactory wash basins, and mirrors often go unused. If there is grumbling at all, it is more likely to be about the delay in being sent overseas rather than personal discomforts.

In California some of the nurses are receiving training at a desert center. Here they live in tents and have only the equipment which would probably be available in Africa. Army uniforms and boots are the accepted costume for the nurses, and operations are performed in tents.

Up to the present time, stated Capt. Atto, the need for Army nurses, all of whom have volunteered, has been so great that it has been impossible to give them all this preliminary training. How-



ever, each nurse receives last-minute hardening and additional training at the staging area while awaiting her sailing date.

*Science News Letter, June 19, 1943*

## GEOGRAPHY

## Japanese Place Names May Become Familiar Soon

► IF AMERICAN armed forces move southward on Japan from the Aleutians, they may follow the string of islands called the Kuriles, stretching from the Russian Kamchatka peninsula to Japan proper. They are Japanese property, ceded to Japan by Russia in 1875.

The "mainland" islands are at the southern end of the string. Paramoshiri, the northernmost Kurile island of importance, is only a few miles from the extreme southern tip of Kamchatka. Kumashiri is only eight miles from Hokkaido, the second largest of the Japanese main islands. Honshu is the home of Tokyo.

The name of Honshu may be pronounced about as one pleases. One American authority says it is Hon-shú. Another equally reliable authority says it is Hón-shoo. Still another authority says neither syllable is accented; both are equally stressed.

Honshu is sometimes called Hondo, pronounced Hon'-do generally in America, but Hon'-do' by the Japanese. Japanese do not accent any particular syllable in most words. One or more consonants with the following vowel constitutes a syllable in general. Each syllable is pronounced separately; each is of equal importance. Thus Paramoshiri is Pa-ra-mo-shi-ri.

The Kuriles are called Chishima by the Japanese, which means "the myriad islands." It would be a repetition of the word islands to call them the Chishima islands. Kurile, or Kuril, is the Russian name and pronounced as in English with the accent on the first syllable Kú-ril. Chishima is a three-syllable word with the accent on the first syllable when pronounced American style: Chí-she-mah. The "Chí" is like the first three letters in Chicago.

Hokkaido is pronounced American style, Hok-kéi-do. Southwest of Honshu and close to it, are two important islands of the main group, Shikoku and Kyushu, peopled by more than 11,000,000 persons. The first is Shi-kó-ku, the second, Kú-shú, with the first "u" as in "cur" and the second as in "rule".

In pronouncing Japanese names, a good general rule is: when in doubt about the accent, omit it; give each

syllable equal stress, and drag the word out monotonously.

*Science News Letter, June 19, 1943*

## MEDICINE

## Salvaged Blood Cells

Red cells, by-product of the production of blood plasma, can be used in the treatment of anemia by transfusion. Economic factor important.

► SUCCESSFUL use of red blood cells, salvaged from blood plasma production, for the treatment of anemia is reported by Dr. Howard L. Alt, of Northwestern University Medical School (*Journal of the American Medical Association*, June 12).

After a severe hemorrhage, Dr. Alt points out, ordinarily it takes six weeks or longer for the patient to recover from the anemia following the loss of blood. But by giving daily transfusions of red cells alone from a quart of blood, recovery from the anemia can be speeded up to a period of a few days.

"If cells could be made available to the armed forces," Dr. Alt states, "it would materially hasten the rehabilitation of wounded men who have suffered from hemorrhage."

The chief advantage of transfusions with red cells in salt solution over whole blood is the economic factor. The same quart of blood can be used to help two patients by giving the plasma to one who needs it, say, for shock, and the red cells to another who needs them for anemia. Dr. Alt believes that if red cells become available at a low cost, which is likely to happen if they are used more commonly, they may be used more often to treat anemia than whole blood is at present.

One patient he reported, who had a progressive, refractory anemia complicating chronic leukemia, was kept going for over a year with monthly red cell transfusions. During this period the patient received the red cells from about 26 quarts of blood.

*Science News Letter, June 19, 1943*

## GEOLOGY-ENGINEERING

## Oil Left Underground

Nearly two-thirds is not recovered by ordinary methods, director of production for Petroleum Administration for War estimates. A challenge to engineers.

► NEARLY two-thirds of the nation's oil is left underground by ordinary methods of recovery, representing an estimated 70 billion barrel reserve which challenges the ingenuity of petroleum engineers, D. R. Knowlton, director of production for the Petroleum Administration for War, declares in a report to the American Institute of Mining and Metallurgical Engineers.

"The most economical and consequently the best source of additional oil for our war program, aside from exploratory drilling, lies in secondary recovery," he maintains. "It is the engineers' problem to get as much of that oil as economically as possible."

At least three billion barrels of the residue left after the easily obtainable oil is pumped can be recovered even by present

methods, Mr. Knowlton believes, at present or slightly increased price.

Efforts to find new fields at a cost of millions of dollars per year have met with only moderate success. Unless our record of discoveries is substantially better during the next few years than it has been during the last few, our domestically produced oil will be insufficient to meet our demands, Mr. Knowlton warns.

New knowledge about how to keep up pressure in oil reservoirs as pumping continues and how to control rate of flow enables engineers to recover much of the so-called secondary oil while still producing the primary oil. Mr. Knowlton urges that new research projects be undertaken to study these methods under varying reservoir conditions.

*Science News Letter, June 19, 1943*

## PHYSICS

**Walnut-Sized Searchlight Visible 65 Miles at Sea**

► A SEARCHLIGHT about as large as a walnut, which will project a 1,500 candlepower beam of light that can be seen 65 miles away, will probably soon be standard equipment in the life rafts for aviators forced down at sea.

This new lamp was designed by Westinghouse at the request of the Navy. It will be worn on a band around the head. It is a six-watt lamp with one-half of the bulb silvered to provide a reflector. By means of a switch it can be used to flash signals.

The lamp will be wired to the small hand-cranked generator now included in life raft equipment to supply power to radio transmitter which automatically sends out an S.O.S. Vessels picking up this distress signal can follow it to within some ten or twelve miles of the life raft, and then must depend upon some visible signal.

The lamp is mounted in a waterproof housing to protect it from injury. It contains a single tungsten filament. Its life is approximately 100 hours.

*Science News Letter, June 19, 1943*

## MEDICINE

**Arrow Poison Aids Study Of Muscle Weakness Disease**

► A CLUE that may help in the search for the cause of myasthenia gravis, chronic, progressive disease of muscular weakness, has been discovered by Prof. A. R. McIntyre and Dr. Ray E. King, of the University of Nebraska College of Medicine.

The clue came from studies of d-tubocurarine, a chemical from one of the plants used in making old South American Indian arrow poison, curare.

This chemical, the Nebraska scientists report (*Science*, June 4) will make a muscle contract even when there is no nerve connection to the muscle. The findings seem to prove that the chemical acts directly on the muscle and not on the nerve mechanism or end plate of the nerve on the muscle fiber.

When curare is present at the surface of the muscle, it probably prevents acceptance by the muscle of acetylcholine, which is a chemical transmitter of stimulation from nerve to muscle. The nerves, on stimulation, go on sending out this chemical transmitter, but the muscle does not respond to it.

In myasthenia gravis, the muscles also fail to respond. The chemical used to treat this condition acts like acetylcholine, preventing the action of a body enzyme which inactivates acetylcholine. But the curare chemical's effect on muscle has nothing to do with this acetylcholine-inactivating enzyme. It apparently just keeps the muscle from using the acetylcholine.

Some similar chemical, the findings suggest, may be blocking acceptance of a chemical transmitter of nerve stimulation in myasthenia gravis. As the Nebraska scientists put it, their findings "provide a possible clue as to the type of substance to look for as the causative agent in myasthenia gravis."

*Science News Letter, June 19, 1943*

## PUBLIC HEALTH

**Current Health Picture Is Called Encouraging**

► RECENT NOTABLE declines in maternal and infant mortality, coupled with new low records for many of the communicable diseases, form an encouraging current health picture. The extent of sickness and death and the growth rate help measure the vitality of the population, Miss Clara E. Cuncell, associate statistician of the U. S. Public Health Service, told an informal meeting of the Population Association of America.

Maternity and infant care is being provided for wives and children of enlisted men through an expanding program now covering some 30 states, she revealed. About 5% of the births in this country for the year ending July first will be to wives of men in the armed forces, it is estimated.

Early 1943 reports show a continued downward trend in infant mortality despite war conditions.

"The latest information available indicates that the birth rate continues to rise," Miss Cuncell announced, but predicted that a continuation of the war will result in a marked decline.

Speaking of industrial absenteeism, she stated that the estimated loss through sickness and injury of war workers is estimated to be about 6,000,000 workdays every month. The great majority of absences are of short duration—one to three days.

"These are sometimes charged to illness," Miss Cuncell suggested, "but probably more truthfully should be attributed to maladjustment."

*Science News Letter, June 19, 1943*

**IN SCIENCE**

## INVENTION

**Improved Smokeless Powder Has Uniform, Tough Grains**

► AN IMPROVEMENT in smokeless powder, producing more uniform, less fragile grains, that will burn more evenly and hence produce more uniform propulsive effect, is the invention of B. H. Mackey of Wilmington, who has assigned rights in his patent, No. 2,320,243, to E. I. du Pont de Nemours and Company.

Smokeless powder, Mr. Mackey explains, is produced by squeezing a pulpy dough through numerous openings, forming strings, which are then cut up and dried. But since the dough moves in one direction only, its minute internal grains are all arranged in the same direction, so that shrinkage on drying changes the shape of the final pellets, and also leaves them rather breakable.

The present invention avoids these difficulties simply by introducing a twist into the path through which the powder-dough strings are forced. This throws the internal graininess into all directions, making for more uniform, less fragile pellets after drying.

*Science News Letter, June 19, 1943*

## NUTRITION

**Vitamins Are "Exploded" Out of Yeast Cells**

► VITAMINS and other desirable yeast products are extracted from the yeast cells by a process reminiscent of that used in producing puffed-grain breakfast cereals, in an invention presented by W. P. Torrington, of New York, for patent 2,319,831. The yeast culture is placed in a sealed tank, where it is subjected to high pressure induced by the introduction of carbon dioxide gas. Then it is suddenly shot into another container where a condition of partial vacuum prevails. This causes the release of certain of the valuable cell constituents into the fluid, which can then be separated off and the products extracted.

Rights in the patent have been assigned to the Emulsions Process Corporation.

*Science News Letter, June 19, 1943*



# NEW FIELDS

## STATISTICS

## New Ph. D. Degree Granted In Statistics at Columbia

► NEARLY TEN YEARS of research in developing statistical methods, many with military uses, has led to the establishment of a new Ph. D. degree in mathematical statistics just announced at Columbia University by Dean George B. Pegram of the Graduate Faculties.

Wartime uses of the subject include determining the probabilities of certain combinations of hits in bombing and artillery fire, sampling inspection of guns and ammunition, and in military meteorology. Medical research in tropical diseases also employs statistical methods.

There is a serious shortage of people who can handle the many new powerful and accurate statistical methods recently discovered. Such experts are needed by the Army, Navy, war industries and various branches of the government.

*Science News Letter, June 19, 1943*

## ORNITHOLOGY

## On-Edge Nest Holds Eggs Stuck With Natural Glue

► WAR COMMUNIQUEs are not the only news items that come out of Africa nowadays. Here's a bird story as fantastic as anything that Sinbad the Sailor ever told, but new and backed by the solid scientific authentication of the British Council. The information was obtained by an English ornithologist, R. E. Moreau, working under the auspices of the Royal Society of London, in Kenya.

The palm swift, a graceful bird related to the American chimney swift, does not build a cup-shaped nest like other birds, and lay its eggs in the bottom. Its nest is a flat pad with a mere flange at its lower side, and it is stuck to the nearly vertical frond of a tall palm, so that it actually stands on edge.

It is made of the feathers of other birds, which the swift collects as they float through the air, darting after them as swifts and swallows generally dart after insects on the wing. It is made fast to its palm-leaf foundation by means

of a kind of natural glue secreted by the bird's salivary glands.

The eggs, laid only one or two for a sitting, are too big to be kept from rolling out by the narrow ledge at the bottom, so the bird glues them fast to the loose, fluffy surface feathers of the nest.

Because the nest is vertical, the parent birds cannot sit on the eggs. Taking turns at incubation, they grip the back of the nest with their feet, and hold themselves firmly against the eggs, with the head at a rigid, upward angle. For 20 days this has to be kept up, until the eggs hatch.

The young are not glued to the nest by the parents; they just have to hang on for dear life, but they are quite competent to do so. They do get a little support from the ledge at the bottom of the nest, and of course are held in place by the parents during brooding. They remain in (or rather up against) their precarious home until they are a month old, by which time they are able to fly.

*Science News Letter, June 19, 1943*

## PSYCHOLOGY

## Color-Blind Animals Have Equipment for Color Sight

► THE EQUIPMENT necessary for seeing colors is present in the eyes of many animals. But only the animals which needed to distinguish colors for their self-preservation have taken the trouble to discover how to use it, Dr. Gordon L. Walls of the Bausch and Lomb Optical Company reports (*Journal of Applied Physics*, April).

Colors send out light waves of different lengths. When these waves strike the rods and cones of our eyes, the impulse is relayed to the optic nerve, and the sensation produced makes us see red or blue, or whatever the color may be. The pinnacle in the evolution of color discrimination is the ability to identify varying shades of the same color. Monkeys, apes, and man are the only mammals which have the ability to see objects in color.

The mechanism for receiving the characteristic wave-lengths of various colors is present, Dr. Walls states, even in the eyes of animals which are known positively to have no color vision, such as a cat. Dr. Walls feels that many animals have only to differentiate between the nerve impulses which already exist and sort out the wave-lengths in order to see the world in color.

*Science News Letter, June 19, 1943*

## MEDICINE

## Vitamin Checks Growth Of Transplanted Cancers

► INOSITOL, the sugar-like compound which prevents baldness in mice and is generally considered one of the B vitamins, checks the growth of transplanted cancers in mice, Dr. D. Laszlo and Dr. C. Leuchtenberger, of Mount Sinai Hospital report (*Science*, June 4).

The degree to which the growth of the transplanted tumors is checked depends on the size of the dose of inositol. Inositol, the scientific investigators state, can be used as a standard of reference for testing other substances that may inhibit tumor growth.

Dr. Laszlo and Dr. Leuchtenberger are members of a research team which previously has reported that complete regression or disappearance of 19 out of 46 spontaneous breast tumors in mice followed treatment with pearled barley.

*Science News Letter, June 19, 1943*

## MEDICINE

## Citric Acid Found in Bones Helps Breakdown of Sugars

► CITRIC ACID, long known for the sour taste it gives to lemons and some other fruits, has been discovered in relatively large amounts in the hard material of the bones of the body and is believed to play a part in their rejuvenation, according to an announcement of the British Council.

Discovery of the acid in the bones was made by Dr. F. Dickens, of the Cancer Research Laboratory, Newcastle-upon-Tyne.

One possible use for this large store of citric acid may be as a reserve supply of an essential catalyst for breaking down sugars and starches, it appears from studies by Dr. H. A. Krebs, of Sheffield University.

Second use for the citric acid in bone, its possible role in bone rejuvenation, depends on the remarkable power the citrates have to dissolve the calcium phosphate and calcium carbonate in bone. It is known that the hard substance of bones is continually being dissolved away and replaced by fresh bone salts. Since the bone salts are practically insoluble in water, it is suggested that the citric acid or its salts help the rejuvenation process by making the bone salts more soluble and therefore more easily mobilized and transported by the blood for manufacture of new bone.

*Science News Letter, June 19, 1943*

# *Today this flag flies over*



**From this world headquarters for radio-electronic research flow new weapons, new discoveries and inventions vital to the winning of an Allied victory!**

**T**ODAY, over RCA Laboratories, flies a new distinguished battleflag—the coveted Army-Navy “E” Award.

One of the few laboratories in America to receive this award, RCA is at once proud of this distinction, and humbly aware of the responsibilities that it imposes. For much of the progress of the entire radio-electronic industry stems from the work done in these laboratories.

It was perhaps with this thought in mind that—at the dedication of the RCA Laboratories in Princeton—the Chief Signal Officer of the Army called them “The Hidden Battlefront of Research.”

**HIDDEN**—because, for the duration of the war, this magnificent building of 150 separate laboratories must be closed to all but the scientists and research technicians who are working on radio-electronic instruments important to our military effort.

**BATTLEFRONT**—because in the waging of modern warfare, radio-electronics is of first importance. It follows the flag and the fleet—locates the enemy—flashes urgent orders—safeguards the convoy—guides the bombers—directs the artillery—maneuvers the tank. This science fights on every front.

And when that certain day of Victory comes, RCA Laboratories will be devoted to the happier task of making our peacetime world richer, safer, more enjoyable and more productive—through new and finer products of radio, television and electronic research.

## **OTHER SERVICES OF RCA WHICH HAVE EARNED OUR COUNTRY'S HIGHEST WARTIME AWARDS**



The Army-Navy “E” flag, with two stars, flies over the RCA Victor Division plant at Camden, New Jersey.



The Army-Navy “E” flag, with one star, has been presented to the RCA Victor Division at Harrison, New Jersey.



The Army-Navy “E” flag, with one star; also the U.S. Maritime Commission “M” Pennant and Victory Fleet Flag have been awarded to the Radiomarine Corporation of America in New York City.

*A Service of  
Radio Corporation of America*



# *RCA*

## **WORLD HEADQUARTERS**

*America's Secret Battlefront*  
**RCA Laboratories**



*Laboratories*

**FOR RADIO-ELECTRONIC RESEARCH**



NAVAL SCIENCE

# Life Saving at Sea

Emergency devices and equipment for life rafts now provided to save the lives of men adrift on open sea when their ship goes down.

By A. C. MONAHAN

See Front Cover

► SAVING sailors from sinking ships is a serious business with the Navy, Coast Guard, and the Maritime Commission. All their boats carry the most modern lifesaving equipment. Lifeboats and life rafts are ever ready, complete with every emergency device that weight and space will permit.

In addition to food and water there are navigation aids, signaling devices, medical aids, two-way radio kits, special clothing, and storm oil to sooth the waters in rough seas. Fishing tackle is included to supplement the food supply.

More than 40 separate items comprise the standard lifeboat equipment. Canvas hoods and side spray curtains make life more comfortable. Bailers, buckets and pumps get rid of water taken on during stormy weather. The boats and rafts are equipped with navigation charts, compasses, tables giving the daily positions of the moon, and sometimes simple apparatus to determine approximate latitude.

They carry distress signals: smoke signals for daylight hours and red lights for night. In addition to their radio sets they are supplied with reflecting mirrors to flash sunlight signals to the pilot of a searching airplane or to the lookout on a passing boat.

The smoke signals are cans which float on the water belching forth volumes of orange or reddish colored smoke visible

for miles. The color makes it easily seen by flyers. (See front cover)

Signaling mirrors are made of stainless steel or other suitably polished metal. They have about 20 square inches of reflecting surface on each side and a small hole in the center.

Flashlights with which the lifeboats and rafts are equipped can be used for night signaling. The red distress signal is more valuable, however, as it can be seen from much greater distances. A watertight metal case that floats on the water contains 12 self-igniting red lights. Each one burns for two minutes, emitting a red light of over 500 candlepower.

The first aid and medical kits save many lives, for men from a war-crippled ship are apt to be suffering from wounds and burns, and often half-drowned as well.

The lifeboat contains 56 ounces of food per person for its rated carrying capacity; 14 ounces each of biscuit, pemmican, chocolate tablets and milk tablets. This 10-day ration can usually be eked out by patient use of the fishing tackle.

Water at sea is more important than food. The standard supply on Merchant Marine lifeboats is 10 quarts per person. Even in the tropics, a man can survive on less than 30 ounces of water a day—about two ounces less than a quart. The ten-quart supply should last from 10 to 12 days, and can often be replenished with rain water.

Fishing tackle helps in both the food and water problem. Fish is drink as well as food. If the fresh meat of the fish is cut up and squeezed, watery juices are extracted which can replace water in the human diet for a long time, if not indefinitely.

If no other way of squeezing is available, the juices may be extracted by chewing the raw flesh, swallowing the liquid and spitting out the solid matter. The watery juice is not salty; it is said to taste like the juice of raw oysters or clams. It had been tested and found safe.

In laboratory tests, men have lived 10 days without other liquids and remained in perfect condition. They gave every indication that they could live indefinitely

with it as their only source of water.

Equipment of life rafts is as similar to that on the lifeboat as storage space will permit. They carry rudders which may be attached and help in steering. They also have oars and demountable oarlocks. Some of them are provided with light telescopic metal masts which may be erected for sails.

The rafts are constructed of metal or wood. Within them are air-filled metal cylinders to keep them from sinking.

Rubber rafts are being experimented with. They have been used for some time by the air services to save the lives of crews forced to abandon their craft over water. Many stories have been told of lives saved by them, such as those of Dixon, Aldrich, Pastula, Gay, and Rickenbacker.

These rafts are carried deflated in the airplane. They can be very quickly blown up with carbon dioxide gas from a small container attached to them, by turning



**LIFE-SAVING EQUIPMENT—**Emergency equipment furnished sailors adrift at sea is shown being inspected by Vice-Adm. R. R. Waesche, Coast Guard commandant. Men in the background are wearing light five-pound suits recently developed for those who must dive overboard in an emergency.

★★★★★★★★★★★★★★

## WYOMING

Yes, even THIS summer you may fish in its mountain streams, ride horseback through its hills and canyons, find Indian relics and marine fossils in a region of great historical and geologic interest.

The Patons welcome a limited number of guests at their ranch in the Big Horn country. They offer plenty of ranch grown food, comfortable cabins and gentle horses. May they tell you more? Write:

**Paton Ranch, Shell, Wyoming**

a single valve. The carbon dioxide is in liquid form under high pressure. One quart of it will fill two hogsheads when released, expanding approximately 450 times its compressed volume.

A small one-man rubber raft is often used by airmen. It is folded and attached to the body under the folded parachute. When the wearer reaches the water he pulls a string to bring to him the raft, or dinghy, as it is called, turns the valve and in ten seconds the raft is inflated. It will carry a weight of 400 pounds and will keep afloat indefinitely. It contains signal flares and rations.

An automatic radio distress signal may be sent from a lifeboat or dinghy by means of a new radio set. It is an Army development. It is a portable hand-generator radio transmitter with an antenna that can be held aloft by a box kite.

The set is designed to be used by a person with practically no knowledge of radio. When the crank is turned, power is generated and automatically the S O S distress-at-sea signal goes out on the air. The signal is strong enough to be picked up 200 miles away.

For sailors facing the necessity of going overboard, light, quickly-donned one-piece rubber overall suits are used. The one-piece suit covers the shoes and fastens tightly about the neck. An attached hood may be used to cover the head.

The suit weighs only a little over five pounds and can be rolled up and stuck in the pocket. It holds some air, which assists the wearer in keeping afloat. A small flashlight attached has a red lens so that floating men may be distinguished from floating rafts, which use white lights.

### How to Find Latitude

A simple way in which men adrift on a lifeboat at sea can determine their latitude by using a piece of cardboard, a pin and a piece of string, has been developed by Sanford Cluett of Troy, N. Y.

The pin is stuck in the center of a nine-inch graduated circle on the cardboard. The device is suspended, weighted so that the 90-degree division on the circle follows a plumb line.

The sun's altitude can be derived from the position of the shadow of the pin. With the sun's altitude determined, the position of the lifeboat can be readily found with the aid of a table of solar declinations. If the men have a watch set on Greenwich time they also can figure their longitude.

All destructible equipment and sup-

plies on a lifeboat or life raft are packaged to protect them against air and moisture. Enclosed with them are full but simple instructions on the use of the materials provided. A leaflet of general suggestions is a part of the standard equipment. Hints on conduct and activities on the life-saving apparatus are included.

Shipwrecked sailors sometimes find uninhabited islands. They may be entirely unfamiliar with plant and animal life on them. Instructions furnished them tell how to find water, about a few of the

edible animals and plants, and suggest methods of protection against harmful animals and plants.

*Science News Letter, June 19, 1943*

The government has set a new price schedule for mica needed in war equipment so that present stockpiles will not be depleted.

Tiny, plump, shiny, black *flea-beetles*, early garden pests, make vegetable leaves look as if riddled with shot; a calcium arsenate spray is a good control.



## Nine Young Men with "Eyes" Second to None



To the enemy command the star-marked bomber these nine young men will fly is a many-eyed creature of destruction. Its "eyes" of optical glass, fixed on the stars or sun, lead it straight to its objective. Then other optical "eyes" look down and ton upon ton of American-made TNT blossoms red in the dust of a shattered Axis dream. Still other "eyes" make the photographic record of its accomplishments to give lie to claims of "only slight damage" . . . to chart a path for others to follow.

Without the bomber's many-lensed "eyes"—what they all are and what they do is a military secret—without the instruments such as Bausch & Lomb produces, the powerful offensive blows of America's mighty bombing fleet would be impossible.

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### More Than Trees Die

► **MORE THAN TREES** die when a forest is burned. Loss of the lumber and other tree products is grievous enough, but even so it is only one item in the sum of the disaster. Many of the rest are tangible items, assessable in dollar damages. Others are not so easily itemized, but their value will be recognized none the less, even by the most utilitarian.

Forests are inhabited places, shelters for all manner of beasts and birds. The fate of these, in a major forest fire, is dreadful: terrified flight until limbs or wings will no longer carry them, then agonized death in the flames. Afterwards—no sport for the hunter with either gun or camera, over that blackened area, perhaps for several human lifetimes.

Fish, too, are sufferers. Forest streams are typically cool and swift—the kind of water that trout delight in. In the worst forest conflagrations, the fish are often killed outright by the sheer heating of the water; but even where the fire is not severe enough for that, the after-consequences are just as fatal to the fish. Polluted with poisons from roasted plants and dead flesh, befouled with charred fragments of destruction, mud-

died by soil exposed to erosion, heated by the beating sun with no more leafy canopy to intercept it, the streams become totally unfit to support the kind of life they once contained. They become slum waters, or even dwindle to mere trickling remnants of their former selves.

The very soil itself becomes the victim of a forest fire. The forest floor is a complex always in a delicate state of balance. Roots of trees and lesser plants, burrows of mice and moles, myriads of insects and worms and other creeping things, and unseen hosts of microorganisms are all essential parts of it. Their

death leaves the soil mere carrion, no more a soil than a charred trunk is a tree, or a live-roasted carcass a deer or a grouse.

Fire season in the western forests is approaching its height. With the CCC out of action, and many of the best men in the Forest Service away on war duty, this becomes a critical year indeed for our forests, now needed as never before. It is to be hoped that all Americans who have occasion to be in our national forests this year will observe very carefully the order of the day: "Hold your fire!"

*Science News Letter, June 19, 1943*

### MEDICINE

## New Medical Society

First meeting is held in Chicago of organization devoted to getting treatment to low income groups at few cents per month prepaid.

► **THE FIRST** meeting of a new organization devoted to getting good medical care to low income groups for a few cents a month on a voluntary, prepayment basis was held in Chicago as a curtain raiser to the meeting of the American Medical Association.

The new organization is the Medical Service Plans Council of America. Its purpose is "one of cooperation and mutually constructive aid" for the various medical service plans sponsored by state and county medical societies which are components of the American Medical Association.

President of the new organization is Dr. James C. McCann, of Worcester, Mass., and Dr. F. L. Feierabend, of Kansas City, Mo., is secretary-treasurer. Both Canada and the United States will be represented.

The growing demand by the public for protection against the catastrophic illness costs has convinced American physicians that they must take the lead in supplying plans to meet this demand in a way that will insure the public good medical care on a prepayment basis. Medical society sponsorship and control, the members of the new group believe, is essential to this.

This thought was reflected in the address of Brig. Gen. Fred W. Rankin, president of the American Medical Association, at the opening meeting of the Association's House of Delegates.

"We cannot disregard," he said, "the growing interest of the public, the government and various lay groups in the

administration of medical care; nor can we afford to engage in a struggle for domination."

He called, instead, for immediate establishment by the Association of "suitable agencies" to investigate this and other pressing problems confronting the medical profession.

The American Medical Association took what appears to be a big forward step on this problem of the economics of medical care when its house of delegates in their final session of the meeting voted to establish a Council on Medical Service and Public Relations.

The first duty with which the new council is charged is "to make available facts, data and medical opinions with respect to timely and adequate rendition of medical care to the American people." It is also charged with studying and suggesting "means for the distribution of medical services to the public consistent with the principles adopted by the house of delegates."

*Science News Letter, June 19, 1943*

### MATHEMATICS DICTIONARY

Invaluable in reading any book that uses mathematics.

**THE JAMES MATHEMATICS DICTIONARY**, the only such book now published, provides standard definitions of the terms and phrases from arithmetic through elementary differential equations, the technical terms ordinarily used in the applications of these subjects, and more advanced basic terms. Easy examples, many illustrations and all sorts of formulas are included. The appendix contains tables of weights and measures, a list of mathematical symbols and the tables ordinarily used in handbooks. This dictionary is a great deal more than a collection of definitions. It explains, illustrates and correlates, stressing especially those operations that are hardest to understand. One reader has called it "Ten texts in one." Available in either flexible or non-flexible, blue fabri-koid binding, for \$3.00, from the Digest Press, Van Nuys, California, or Science News Letter.

## Books

**SCIENCE NEWS LETTER** will obtain for you any American book or magazine in print. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we will pay postage in the United States. When publications are free send 10c for handling.

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## • New Machines and Gadgets •

✿ **ARTIFICIAL SPICE** oils are now available as substitutes for cassia, nutmeg, anise and Ceylon cinnamon. They closely simulate the natural oils in odor and taste and strength.

*Science News Letter, June 19, 1943*

✿ **PLASTIC LENSES** used in the most powerful portable focusing spotlights yet designed transmit about 90 per cent of the light rays. The spotlight in which these lenses are used weighs only about four pounds and uses a six-volt lantern battery.

*Science News Letter, June 19, 1943*

✿ **POWERLINE TALKIE** units have been developed for inter-office and inter-plant communication. No special wiring is necessary. The electronic units are plugged into the existing electric light circuits.

*Science News Letter, June 19, 1943*

✿ **THE BOX** in the upper left of the picture shields an automatic water level recorder, part of a new method of continuously measuring the amount of water a stream carries. New data on small watershed drainage thus obtained will be valuable in predicting flash floods, determining surface water supplies and selecting the size and type of highway and railway drainage structures.

*Science News Letter, June 19, 1943*



✿ **PLASTIC TUBING** now replaces rubber tubing in creameries, breweries and in similar industries. It is reported to have the same strength as rubber and the same resistance to heat. It is made either colored or transparent. Any obstruction in the transparent tubing can be located quickly.

*Science News Letter, June 19, 1943*

✿ **POLISHING BUTTONS**, an ancient task of soldiering, is now simplified by a bit of plastic sheet. Slipped between the button and uniform fabric, the plastic shields the cloth from being soiled by excess polish.

*Science News Letter, June 19, 1943*

✿ **A SPECIAL GAUGE** measures the deflection of tires on a loaded truck. It avoids unnecessary tire wear by quickly showing what change in air pressure is needed for a given load.

*Science News Letter, June 19, 1943*

✿ **SCRAMBLING** an egg without removing it from the shell is an achievement recently patented. A needle with two flat metal springs is inserted through the shell, the springs spread, and rotation does the scrambling.

*Science News Letter, June 19, 1943*

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 161.

### PSYCHOLOGY

## WAACs Are Tested on Their Knowledge of Tools

➤ **PSYCHOLOGICAL TESTS** are given women applying for acceptance in the WAAC by the same section of the Adjutant General's Office that administers tests to men selected by local boards for Army service, but the tests differ in several respects. They are described in *Science* (May 28).

The first given the women is a mental alertness test to screen out the unfit. It includes items of six types: information, vocabulary, arithmetic, judgment, proverb interpretation, and comprehension of graphs and tables. This is followed by a classification test, an aptitude test, and a proficiency test.

The classification test is similar to that given the men. The aptitude tests used concern mechanical aptitudes, clerical aptitudes, and a special test for radiotele-

## • RADIO

Saturday, June 26, 1:30 p.m., EWT

"Adventures in Science" with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Col. Rohland Isker, of the U. S. Army Quartermaster Corps, who is in charge of food research for the Army, will speak on "New Kinds of Food for the Army."

graph operators. The particular mechanical aptitude test given the women is known in the Army as MA-4. It includes the recognition of tools and an understanding of mechanics.

The clerical aptitude tests are intended to determine aptitudes and ability in general clerical work. The radiotelegraph operator aptitude test is the Army ROA-1, X-1, which contains 156 items each consisting of two code patterns sounded in succession. The person being tested indicates if the two patterns are the same or different. These code items are on phonograph records to facilitate group testing.

Written and oral tests are then given to test the women in radio repair work, automobile repair, and other matters requiring mechanical skill.

*Science News Letter, June 19, 1943*

**A Book that  
Explains OIL,  
the Industry,  
Processes & Products**

**--The--  
AMAZING  
PETROLEUM  
INDUSTRY**

By V. A. Kalichevsky

This fascinating book highlights the story of Petroleum and explains to the man on the street the elementary facts about the nature and composition of the world's most important raw material.

Through the efforts of the research chemists and engineers of the petroleum industry, we have been furnished with aviation gasoline, lubricating oil and fuel oil, as well as with synthetic rubber, explosives, the wonder-working sulfa drugs, and hundreds of other useful products!

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# First Glances at New Books

➤ **WAR LEADERS:** Marlborough, Frederick, Napoleon, are told about in a compact, rapidly-moving account, **MASTERS OF MOBILE WARFARE** (*Princeton Univ. Press*, \$2) by Elbridge Colby. It leaves one feeling that any of these masters, if he were to return today, would have little trouble in mastering the implements of Eisenhower and Montgomery, and fitting them into his own basic tactics.

*Science News Letter, June 19, 1943*

➤ **A BOOK OF INFORMATION** intended primarily for high school students, many of whom will be inducted before long, or enlisted as WAACs or WAVES is **OUR ARMED FORCES** (*Infantry Journal*, 35c. To students, teachers and schools, 25c). This will interest parents, too. Published jointly by the U. S. Office of Education and the Infantry Association.

*Science News Letter, June 19, 1943*

➤ **INTERESTING TESTS** contained in a new book, **TEST YOURSELF FOR A WAR JOB** by S. Vincent Wilking and Dorothy J. Cushman (*Houghton Mifflin*, \$1.50) will give you information about yourself, but you will be wise not to depend upon such self testing in selecting a vocation. A sick man may take his own temperature and learn to read from the thermometer whether he has a fever, but that will not tell him the nature of his illness. Mental tests, like fever thermometers, are only scales by which measurements may be made, but in the case of newly developed tests, it is impossible to be scientifically sure just what is measured or what the results mean in terms of vocational futures. It takes a professionally trained psychologist to interpret test scores, and make a psychological diagnosis.

*Science News Letter, June 19, 1943*

➤ **EVERYBODY** and his wife are buying a farm nowadays—or at least are talking about buying a farm. Before you decide where you are going to buy, and what kind of a farm you want to run, it might be a good idea to read at least some of the 1,001 pages of **A PRACTICAL GUIDE TO SUCCESSFUL FARMING**, edited by Wallace S. Moreland, for 15 years extension editor of the New Jersey State College of Agriculture. It embodies the combined experience and

wisdom of 36 men who really know the many phases of farm life and the various special kinds of farming (all the way from Bees to Beef) encompassed in the encyclopedic scope of this thick volume. (*Halcyon House*, \$3.95).

*Science News Letter, June 19, 1943*

➤ **ROBERT HEGNER'S** name has meant, to biologists for well over a generation, not only sound research but a sound, solid and dependable textbook. Now he is gone, but his influence in American college teaching goes on. It is fortunate that in **BIOLOGY, THE SCIENCE OF LIFE**, the final textbook into which his work went, he had so able a collaborator as Mary Stuart MacDougall, who could carry on and complete the task. (*McGraw-Hill*, \$4).

*Science News Letter, June 19, 1943*

➤ **EVOLUTION BOOKS** are usually either popular treatises or college texts: their multiplicity is sufficiently justified by the evident demand for them. Julian Huxley's **EVOLUTION, THE MODERN SYNTHESIS** (*Harper & Brothers*, \$5), belongs to neither of these categories; it is definitely a scientist's book, and assumes good preparation on the part of the reader. Such a reader, however, may well take it up assured that however learned he may be he will here learn something more.

*Science News Letter, June 19, 1943*

➤ **ZOOLOGISTS** who work in the West, or with Western material, will welcome the appearance of **THE MAMMALS OF COLORADO**, by Edward Royal Warren (*Univ. of Oklahoma Press*, \$4). Accurate descriptions and helpful discussion of habits and habitats are interspersed with good half-tone illustrations.

*Science News Letter, June 19, 1943*

➤ **BATTLESHIPS** were supposed to be passé at the beginning of this war, and indeed even for some time after we got into it. Then one day last fall we heard, scarce believing, how one of our new big ones (name still withheld) had deliberately dared the Jap planes to come on, and had blasted them out of the sky by tens with her secondary batteries. The epic of this and other actions is vividly told by Sidney Shallett in **OLD NAMELESS** (*Appleton Century*, \$2). The case, quite evidently, is still not closed.

*Science News Letter, June 19, 1943*

➤ **"ALPHABET SOUP"** was a favorite Washington headache cause during pre-war days. Now many of the old cryptic letter-combinations are gone, but new ones have come with the war: BEW, OSRD, WRA, OES and many others. One of these (OWI) has obligingly issued what will doubtless be hailed as one of the most useful of all government publications: a **HANDBOOK OF EMERGENCY WAR AGENCIES** (*U. S. Gov't Print. Office*, 20c). It tells what the various agencies are, what they do, where they are located (or were, when the booklet was published), and who heads them (again as of publication date).

*Science News Letter, June 19, 1943*

## Books of the Week

**EDUCATIONAL PUBLICITY**—Benjamin Fine—*Harper*, 320 p., illus., \$3. Written by the Education Editor of The New York Times; published under the sponsorship of American Council on Public Relations.

**HANDBOOK OF EMERGENCY WAR AGENCIES**—Office of War Information—*Gov. Print. Office*, 143 p., 20c.

**MATHEMATICS FOR THE SHEET METAL WORKER IN GENERAL AND AIRCRAFT SHOPS**—Clayton E. Buell—*Pitman Publishing Corp.*, 199 p., illus., \$2.

**NAVAL ARCHITECTURE AS ART AND SCIENCE**—C. O. Liljegren—*Cornell Maritime Press*, 212 p., illus., \$4. Planned for both beginners and advanced students in ship drafting, design, and naval architecture.

**OUR ARMED FORCES**—A Source Book on the Army and Navy for High-School Students—U. S. Infantry Assn. and U. S. Office of Education—*Infantry Journal*, 128 p., illus., 35c.

**THE POLITICAL MEETING PLACES OF THE GREEKS**—William A. McDonald—*The Johns Hopkins Press*, 308 p., illus., \$5.

**SCIENCE: A Story of Progress and Discovery**—Ira C. Davis—*Holt*, 495 p., illus., \$1.84. Rev. ed. A textbook on science, accompanied by teacher's manual.

**SURVEY AND EXCAVATIONS IN SOUTHERN ECUADOR**—Donald Collier and John V. Murra—*Field Museum of Natural History*, vol. 35, illus., Anthropological series publication 528, \$1.50.

**TEST YOURSELF FOR A WAR JOB**—S. Vincent Wilking and Dorothy J. Cushman—*Houghton Mifflin Co.*, 137 p., illus., \$1.50.

**TUBERCULOSIS AS IT COMES AND GOES**—Edward W. Hayes—Published by the author, Monrovia, Calif., 187 p., illus., \$2. Intended as an explanation of the cause and nature of tuberculosis and a correct idea of its treatment.